

A NEW SPECIES OF *MAEVIUS* STÅL FROM AUSTRALIA AND SOME
NOTES ON THE FAMILY HYOCEPHALIDAE
(HEMIPTERA: HETEROPTERA)

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Abstract.—*Maevius luridus*, n. sp., is described from Australia and compared with *Maevius indecorus* Stål, the only previously known species of the genus. Habitus view illustrations and drawings of the male genitalia are provided to distinguish the three species now included in the family Hyocephalidae. New records for *Hyocephalus aprugnus* Bergroth and *Maevius indecorus* are presented. A key to the genera and species is given.

Key Words: Hemiptera, Hyocephalidae, *Maevius*, *Hyocephalus*, taxonomy

The endemic Australian family Hyocephalidae has both Coreidae and Lygaeidae features and is perhaps the most primitive of the families of the Coreoidea (Stys 1964; Schaefer 1964, 1965, 1981). Previously two genera and two species were known. The first hyocephalid, *Maevius indecorus*, was described by Stål (1874) from Moreton Bay in Queensland, Australia, and was included in the Division Lethaearia of the Family Lygaeidae. Scudder (1962) removed the genus *Maevius* from the Lygaeidae and transferred it to the Coreidae because of its external similarity to *Lygaeopharus* Stål (Coreidae: Colpurini). Bergroth (1906) described the second taxon, *Hyocephalus aprugnus*, from a single macropterous female from South Australia (Yorketown) and included this genus in a new subfamily, Hyocephalinae, within the Coreidae. Later Bergroth (1912) described a brachypterous female from New South Wales, Australia, and reduced the rank of this group to a mere division (Hyocephalaria) of the Coreidae. Reuter (1912) raised Hyocephalinae to family rank and this action has been followed by all subsequent authors. Stys (1964) in

the only previous comprehensive paper on the Hyocephalidae retained them as a family, giving a detailed description, and distinguishing them from Coreidae, Largidae, Lygaeidae, Stenocephalidae and Pyrrhocoridae. In that seminal contribution only *Hyocephalus aprugnus* was available for study.

Kumar (1965) analyzed the position of the hyocephalids, and concluded that the type of ovipositor in this family is a modification in response to its particular mode of life. A year later Kumar (1966) studied the biology, the immature stages and the relative growth of some Australian bugs. The species studied by Kumar in both papers under the name *Hyocephalus* sp. nov. was actually *Maevius indecorus*.

Recently Schuh and Slater (1995) summarized the general morphology of the Hyocephalidae.

In this paper I describe a second species of *Maevius* and give new distributional records for the other two species in the family.

The following abbreviations indicate institutions where specimens are deposited or which generously lent material: Australian

National Insect Collection, Canberra (ANIC); The Natural History Museum, London (BMNH); Bernice P. Bishop Museum, Honolulu, Hawaii (BPBM); Colección Entomológica del Instituto de Biología, Universidad Nacional Autónoma de México (UNAM); James A. Slater Collection (JAS); Australian Museum, Sydney (AMS); Queensland Museum, Brisbane (QMBA); South Australian Museum, Adelaide (SAMA); University of Queensland Insect Collection, Brisbane (UQIC); Western Australian Museum, Perth (WAM).

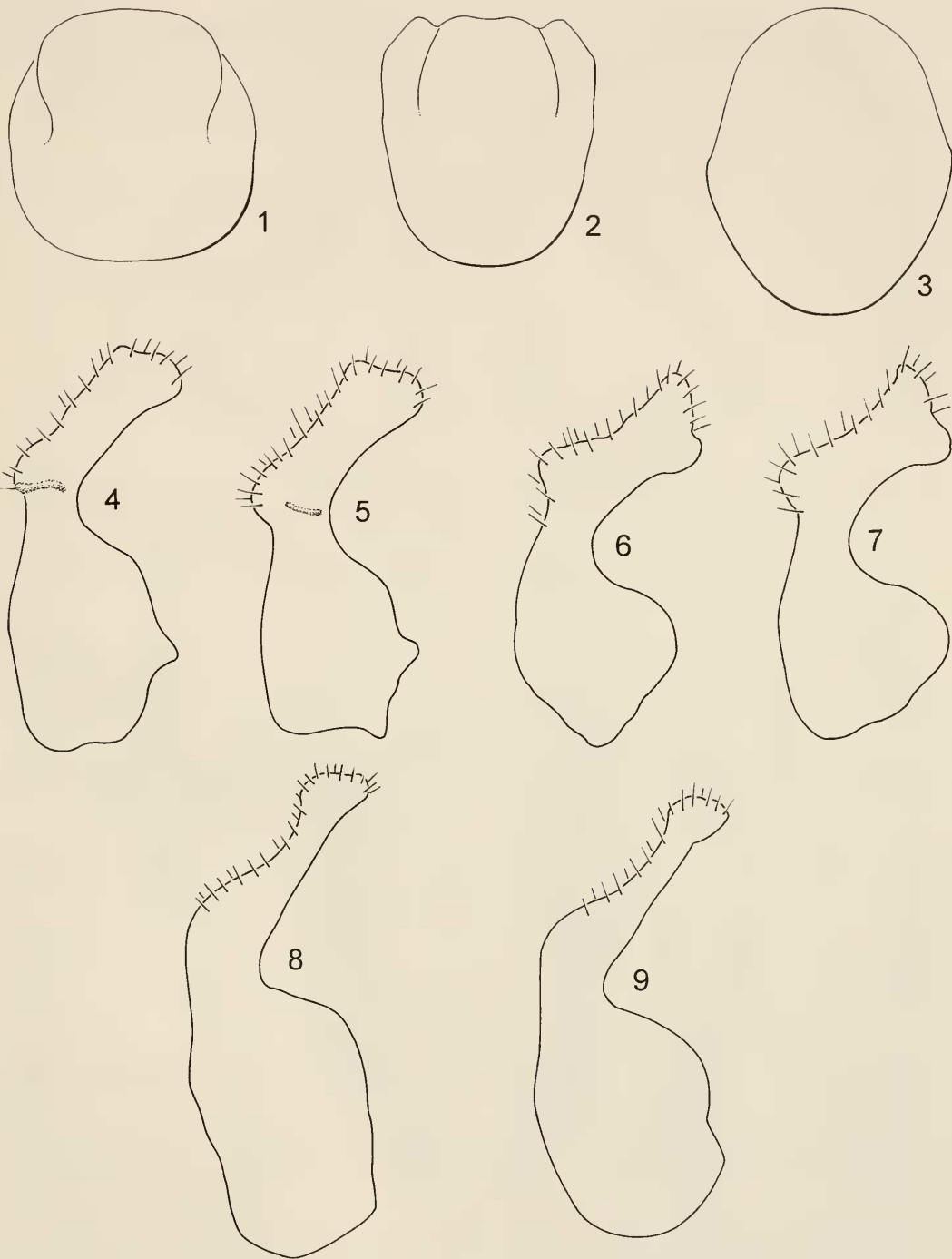
All measurements are given in millimeters.

***Maevius luridus* Brailovsky, new species**
(Figs. 1, 4, 5, 11)

Description.—*Measurements*: Male first, female second: Head length: 1.70, 1.89; width across eyes: 1.27, 1.30; interocular space: 0.80, 0.81; interocellar space: 0.59, 0.62; preocular distance: 1.30, 1.36; length antennal segments: I, 1.42, 1.39; II, 1.45, 1.55; III, 0.77, 0.78; IV, 0.89, 0.92. Pronotum: Total length: 1.42, 1.48; width across frontal angles: 1.30, 1.37; width across humeral angles: 1.98, 2.01. Scutellar length: 1.08, 1.20; width, 1.33, 1.36. Total body length: 9.10, 10.20.

Male: *Dorsal coloration*: Head brown on ochre yellow background, with space between eye and ocelli and a median longitudinal band running from apex of tylus to vertex light yellow; antennal segments I to III black, and IV yellow with basal third black; pronotum, scutellum, clavus and corium ochre yellow with light brown mottled patches; connexival segments III to VI light brown with anterior and posterior third yellow, and VII light brown with posterior third yellow; dorsal abdominal segments I to VI yellow with middle third of each segment black, and VII ochre yellow with light brown mottled patches. *Ventral coloration*: Head including rostral segments I to IV yellow, with basal third of rostral segment II and median gular region brown; thorax light brown on ochre yellow background,

with acetabulae, and metathoracic peritreme yellow; legs ochre yellow; abdominal sterna yellow with light brown mottled patches; pleural margin of abdominal sterna III to VI light brown with anterior and posterior third yellow, and VII light brown with posterior third yellow. *Sculpture*: Head, pronotum, scutellum, corium, clavus, thorax, and abdominal sterna dull, with small tubercles, bearing short, minute, curved-like hairs; antennal segments densely covered with adpressed golden setae, with some semierect longer setae, denser on segments II to IV; femora with few scattered setae; tibiae with some minute, adpressed, hardly recognizable hairs, and with many longer, straight setae; both ventral edges of tibiae bear one row of spine-like, thicker setae; tarsi densely covered with long setae, especially on ventral surfaces. *Structure*: Head horizontal, porrect, very long and narrow; postocular section thicker than anteocular one; frons and vertex convex; eyes small, remote from pronotal margin; ocelli very small, situated near posterolateral eye margin; tylus elevated, narrow, laterally compressed, anteriorly considerably surpassing jugae; jugae short, and anteriorly pointed; antenniferous tubercle distinctly infericorn in position, remote from eyes, occupying nearly whole area between gula and tylus, large with divergent and convex lateral sides, simple anterolateral corners, and very large apical membranous sockets; bucculae large and long, anteriorly rounded, gradually narrowing posteriorly, disappearing at level anterior eye margin; rostrum reaching anterior border of mesosternum. *Pronotum*: Trapezoidal; collar evident; frontal angles distinctly produced anteriorly; lateral margins weakly sinuate, emarginate; humeral angles slightly exposed; posterior margin weakly straight; disc with a pair of indistinct large, oval callar impressions. *Legs*: Fore femur ventrally armed with a double row of subapical spines; middle and hind femora unarmed; tibiae sulcate. *Scutellum*: Triangular; disc almost flat; anterolateral corners with a pair of irregular depressions;



Figs. 1-9. 1-3, Male genital capsule in caudal view. 1, *Maevius luridus*. 2, *Maevius indecorus*. 3, *Hyoccephalus aprugnus*. 4-9, Parameres in lateral view. 4, 5, *Maevius luridus*. 6, 7, *Maevius indecorus*. 8, 9, *Hyoccephalus aprugnus*.

apex subacute. *Hemelytra*: Staphylinoid; clavus and corium indistinguishably fused into a coriaceous pad, and hemelytra meeting each other along midline for their entire length, posterior end truncated and covering only first three abdominal terga; hemelytral membrane absent. *Abdomen*: Connexival segments higher than terga; connexival margin complete; posterior angle of each connexival segment complete, not extending as a short spine. *Genitalia*: Genital capsule with posteroventral margin complete; surface convex, laterally slightly raised almost for their whole longitudinal length (Fig. 1). Paramere as in Figs. 4–5.

Female: *Coloration*: Similar to male. Genital plates brown with upper margin yellow. *Structure*: Abdominal sternite VII fissured for their entire length; paratergite VIII short, squarish, with visible spiracle; paratergite IX larger, square; II valvifers narrow, parallel and interlocking at their entire length.

Variation (in both sexes).—1, Antennal segment I chestnut orange. 2, Connexival segments III to VII with upper margin brown, lower margin chestnut orange, and anterior and posterior third yellow to ochre yellow. 3, Trochanters light chestnut orange.

Type material.—Holotype: ♂, Australia: South Australia, Eyre Penn., near Caralue Bluff, under *Spinifex* sp. (Gramineae), 8 October 1964, F. J. Mitchel (SAMA). Paratypes: 1 ♀, same data as holotype (SAMA); 2 ♂, 1 ♀, Australia: Arden Vale, on *Triodia* sp. (Gramineae), 19 June 1976, C. van Dyk (SAMA, UNAM); 1 ♂, 1 ♀, Australia: Victoria: Hattah Lakes Nat. Park, 4 April 1969, G. B. Monteith. (QMBA).

Diagnosis.—This is a medium-sized species similar to *M. indecorus* Stål, the only previously known species of the genus. *Maevius luridus* is easily distinguished by the pale ochre yellow coloration in contrast with the dark reddish brown coloration of *M. indecorus* on which only the following areas are pale yellow or chestnut orange: antennal segment IV, anterior and posterior third of abdominal terga III to VII, trochanters, basal third of tibiae, tarsi, and anterior

and posterior third of pleural margins of abdominal sternae III to VII. The length of antennal segments I to IV are shorter in *M. luridus* and the shape of the parameres also differs (Figs. 4–7).

Distribution.—Known only from the Southeastern part of South Australia and the Northwestern of Victoria.

Etymology.—Named for its light coloration; from the latin *luridus*, pale yellow.

Maevius indecorus Stål

(Figs. 2, 6, 7, 10)

Maevius indecorus Stål 1874: 165.

The morphology and life history of this species were studied by Kumar (1965, 1966) under the name *Hyocephalus* sp. nov. He mentioned that it probably feeds on the seeds of *Acacia* (Leguminosae) or *Eucalyptus* (Myrtaceae), or both.

Distribution.—Stål (1874) described this species from Moreton Bay in Queensland, Australia. Kumar (1966) recorded it from Moggill, near Brisbane. The new records listed below show it occurs from Rockhampton south to Newcastle in Eastern Australia and in the Southeastern Western Australia.

Material examined.—Australia: Queensland: 1 ♂, 1 ♀, S. E. Queensland: Brisbane, Rochedale, January 1980, V. Davies and R. Raven (UQIC, QMBA); 2 ♂, Lamington Nat. Park, 17–24 May 1965, G. Monteith (UQIC); 1 ♂, Mt. Chalmers, 24 October 1990, R. Raven (QMBA); 1 ♂, 4 ♀, Bunya Mts., 27–31 May 1962, E. A. Bernays, 17–18 September 1966, G. Monteith (UQIC); 1 ♂, 2 ♀, Dunwich Stradbroke Is., 9 May 1964, 15–16 March 1975, 21 April 1965, G. Monteith (UQIC); 1 ♀, Big Sand Hill at Moreton I., 1 October 1955, E. N. Marks (from litter under *Banksia*) (UQIC); 1 ♀, Dunwich, 11 April 1965, J. E. Dunwoody (UQIC); 1 ♂, Fletcher, without date, E. Sutton (UQIC); 1 ♂, thunderbird Park (Tamborine Mts.), 23–29 October 1993, S. A. Slipinski and J. F. Lawrence (ANIC); 2 males, 1 female, Brisbane, adults taken at Moggill on banks of River Brisbane and

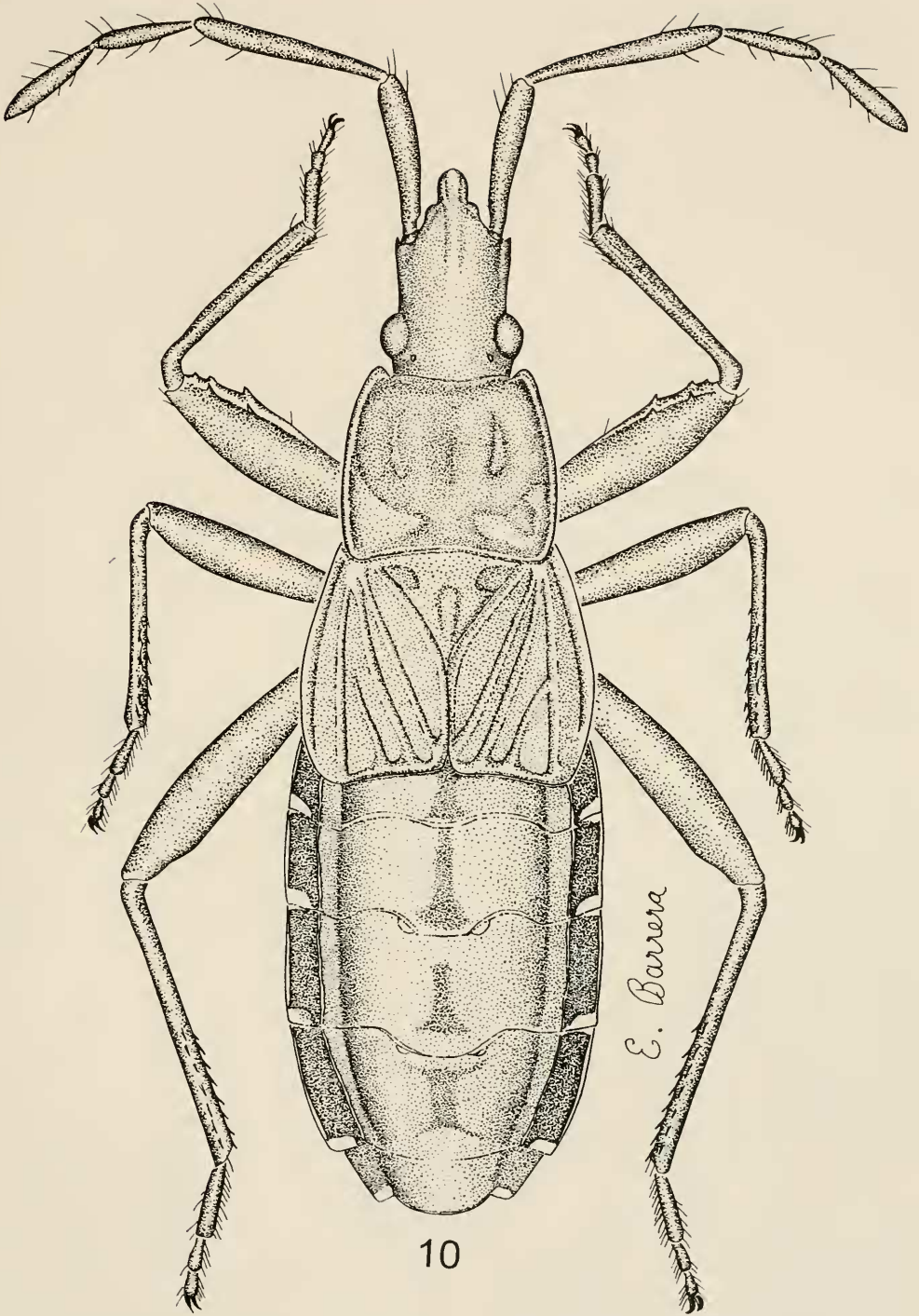
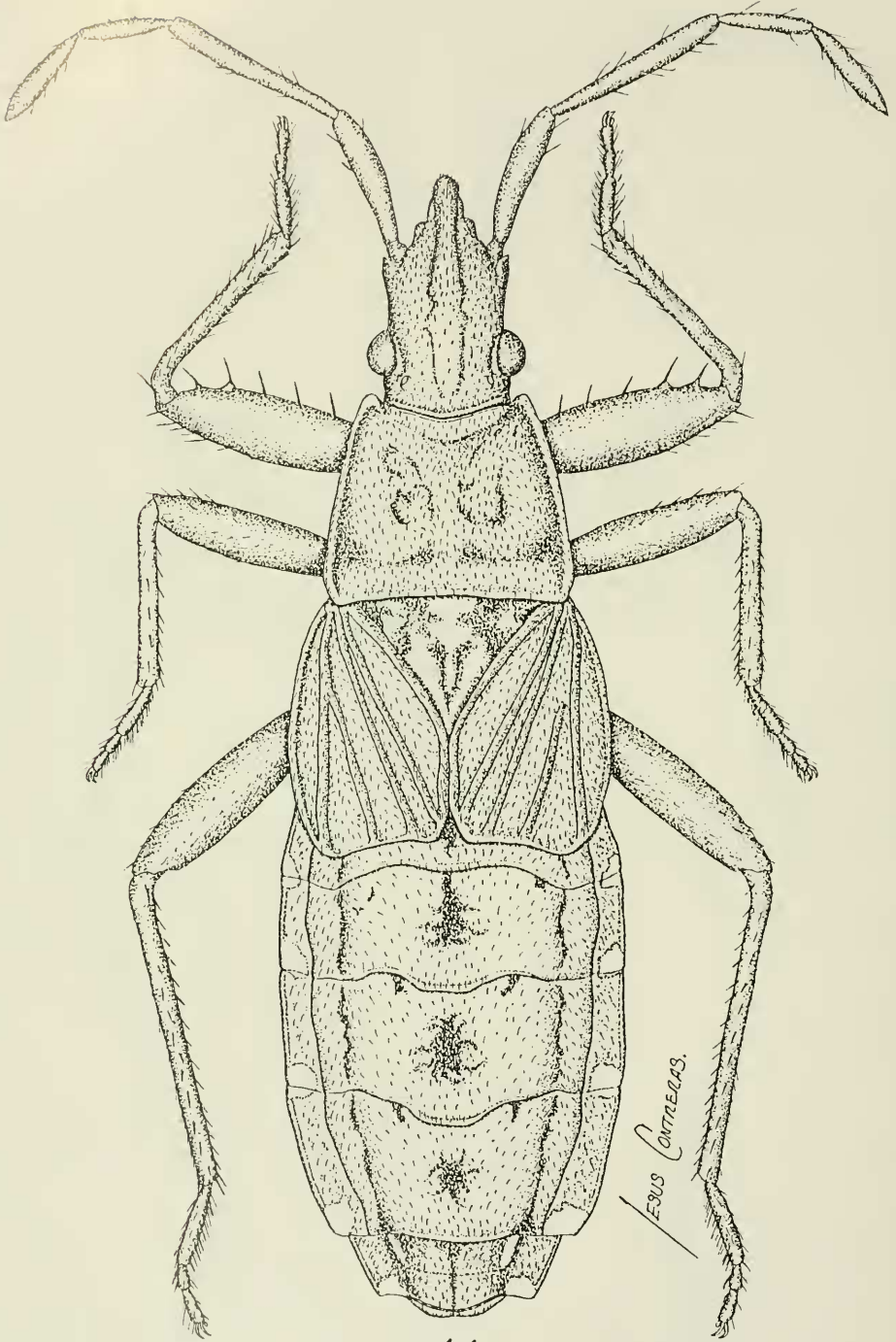


Fig. 10. Dorsal view of *Maevius indecorus*, male.



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Fig. 11. Dorsal view of *Maevius luridus*, male.

reared in culture by R. Kumar (BPBM); 20 ♂, 35 ♀, Brisbane, 20 May 1960, H. A. Rose, 19 August 1960, M. Smith, 15 October 1963, December 1963, R. Kumar, 1–9 January 1964, R. Kumar, 17 December 1964, R. Kumar (BPBM, UQIC, UNAM); 5 ♂, 4 ♀, Moggill, 2 April 1962, T. E. Woodward, 7–16 September 1963, R. Kumar, 4 October 1963, R. Kumar (UQIC); 1 ♀, Blackdown Tableland, via Dingo, 1–6 February 1981, G. B. Monteith (QMBA); 4 ♀, Highvale, March 1970, B. Cantrell (UQIC); 1 ♀, Brisbane, Mt. Coot-tha, 10 January 1972, J. A. Slater (JAS), Australia: New South Wales: 1 ♂, Greta, 1951, J. Sedlacek (BPBM); 2 ♂, 2 ♀, Unungar State Forest, via Kyogle, 12 April 1966, G. Monteith (UQIC); 1 ♀, Bonie N., Coonabarabran, 6 September 1970, B. Cantrell (UQIC); Western Australia: 1 ♀, Goldfields Surv., Lake Cronin, 5 June 1981, W. F. Humphreys (WAM); 3 ♀, Wildlife Res., 21 mi., N. of Perth, 16 December 1971, J. A. Slater (adults taken under *Hypocalymna angustifolium* Endl. (Myrtaceae) (JAS, UNAM); 1 ♀, Mt. Cooke, 43 mi., S. of Perth, 23 March 1968, F. H. Uther Baker (SAMA); 1 ♀, 2 mi., W. of Fraser Range, 3 June 1979, F. W. Aslin (adult taken under road side rocks on edge of old road) (WAM); 2 ♂, Stirling Range, 4 March 1994, Monteith and Janetzki (QMBA).

Hyocephalus aprugnus Bergroth
(Figs. 3, 8, 9, 12, 13)

Hyocephalus aprugnus Bergroth 1906: 648.

Bergroth's (1906) original holotype was considered lost for many years and when Stys (1964) discovered 11 specimens clearly collected with the holotype in the Hungarian Natural History Museum he designated one as a neotype. Later the original holotype was discovered in the University Zoology Museum Helsinki but Grant and Stys (1970) applied for retention of the neotype.

Stys (1964) characterized the genus and the species and commented on the morphology and relationship of the group. The

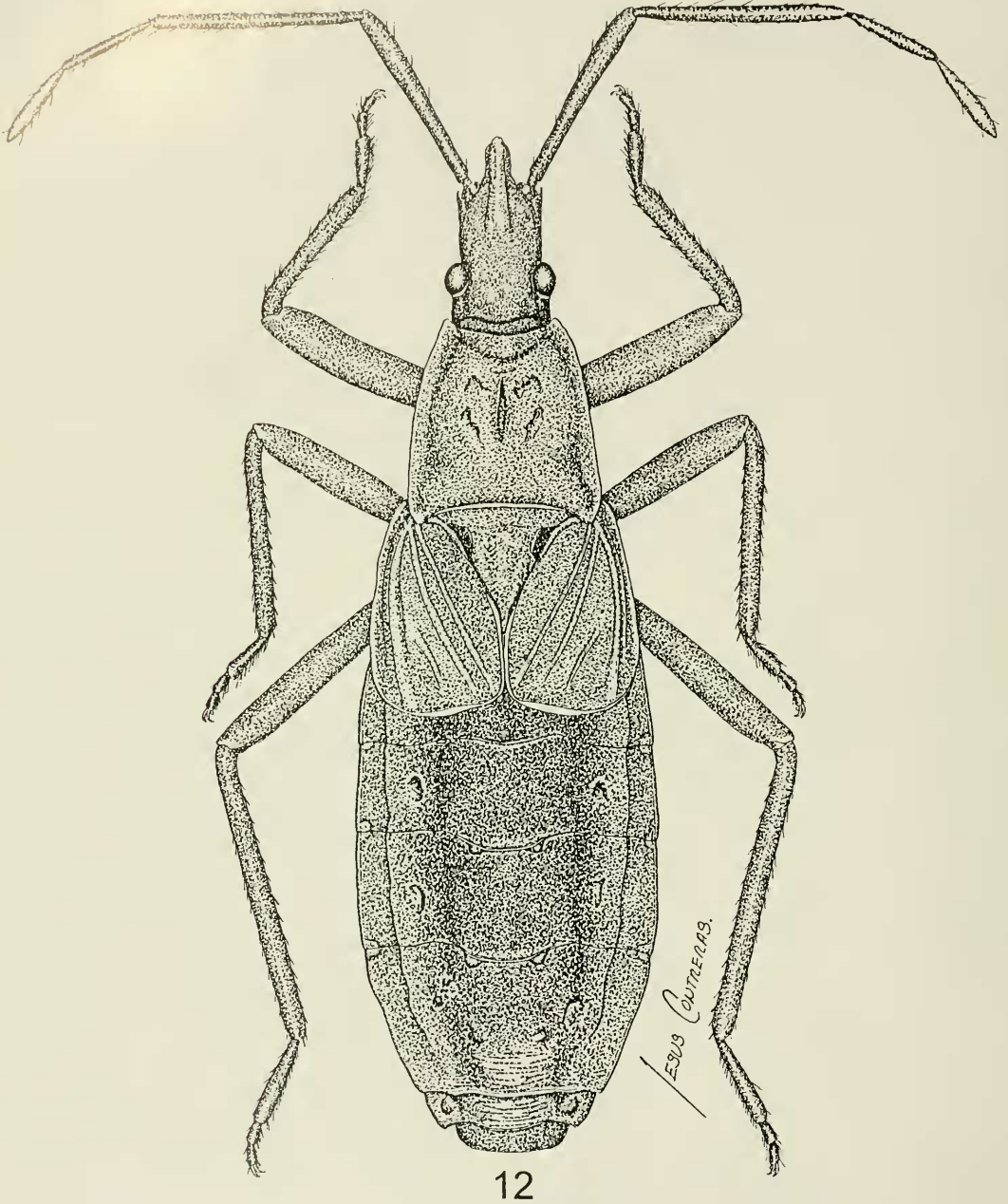
macropterous (Fig. 13) and staphylinoid (Fig. 12) condition, has been adequately re-described by Bergroth (1912) and Stys (1964).

Distribution.—This species was described from Yorketown (near Adelaide) in South Australia (Bergroth 1906), and later recorded from an unspecified locality in New South Wales (Bergroth 1912). The new records listed below show it occurs in the Southwestern Western Australia and in the Southeastern corner of Western Australia. No material is available to confirm its occurrence in New South Wales.

Material examined.—Australia: South Australia: 1 ♂, 1 ♀, Gum Lagoon 36°17'S–140°02'E, 25 March 1992, J. A. Forrest (SAMA); 1 ♀, 9 km., N. of Long Point, 35°37'S–139°39'E, 5–9 September 1991 (SAMA); 1 ♂, Loftia Park, 21 September 1989, D. Hirst (SAMA); Western Australia: 1 ♀, Torbay in Let, 10 mi., W. of Albany, 28 December 1971, J. A. Slater (JAS); 1 ♀, Mt. Cooke, 43 mi., S of Perth, 23 March 1968, F. H. Uther Baker (WAM); 1 ♂, Limestone Head, via Albany, 3 March 1970, G. W. Kendrick (UNAM); 1 ♂, 1 ♀, Garden Island, 32°12'S–115°40'E, 18 June 1969, B. Humphreys (adult taken under galvanized iron at the base of *Pittosporum* (Pittosporaceae) and 12 November 1975, S. M. Slack Smith (WAM); 1 ♂, Vicinity of Devils Lair Cave, near Karridale, 20 March 1973, A. Baynes (UNAM); 1 ♂, 1 ♀, White Gum Flat, Stirling Range Nat. Park, 34°24'S–117°55'E, 1 April 1993, M. S. Harvey and J. M. Waldock (WAM); 2 ♂, 3 ♀, Thomas R., Cape Arid, 23 May 1977, R. McMillan (UNAM, WAM).

PLANT ASSOCIATIONS

Hyocephalids live on the ground in a variety of habitats from semi-desert to tall coastal eucalypt forest. They shelter under stones, logs and other debris. *Maeвиus indecorus* has been taken under the prickly hummocks of *Spinifex* (*Triodia* spp.) grasses, a specialized Australian desert habitat occupied



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Fig. 12. Dorsal view of *Hyocephalus aprugnus*, male staphylinid.

by many invertebrates (Monteith, pers. comm.).

The natural food of hyocephalids has not been recorded but is assumed to be seeds. Kumar (1966) successfully reared *Maevius indecorus* through several generations in

the laboratory on sunflower seeds. He speculated that they may feed on seeds of *Eucalyptus* (Myrtaceae) and *Acacia* (Mimosaceae) in nature. This speculation was repeated as fact (Schaefer and Mitchell 1983, Schuh and Slater 1995) but has not been

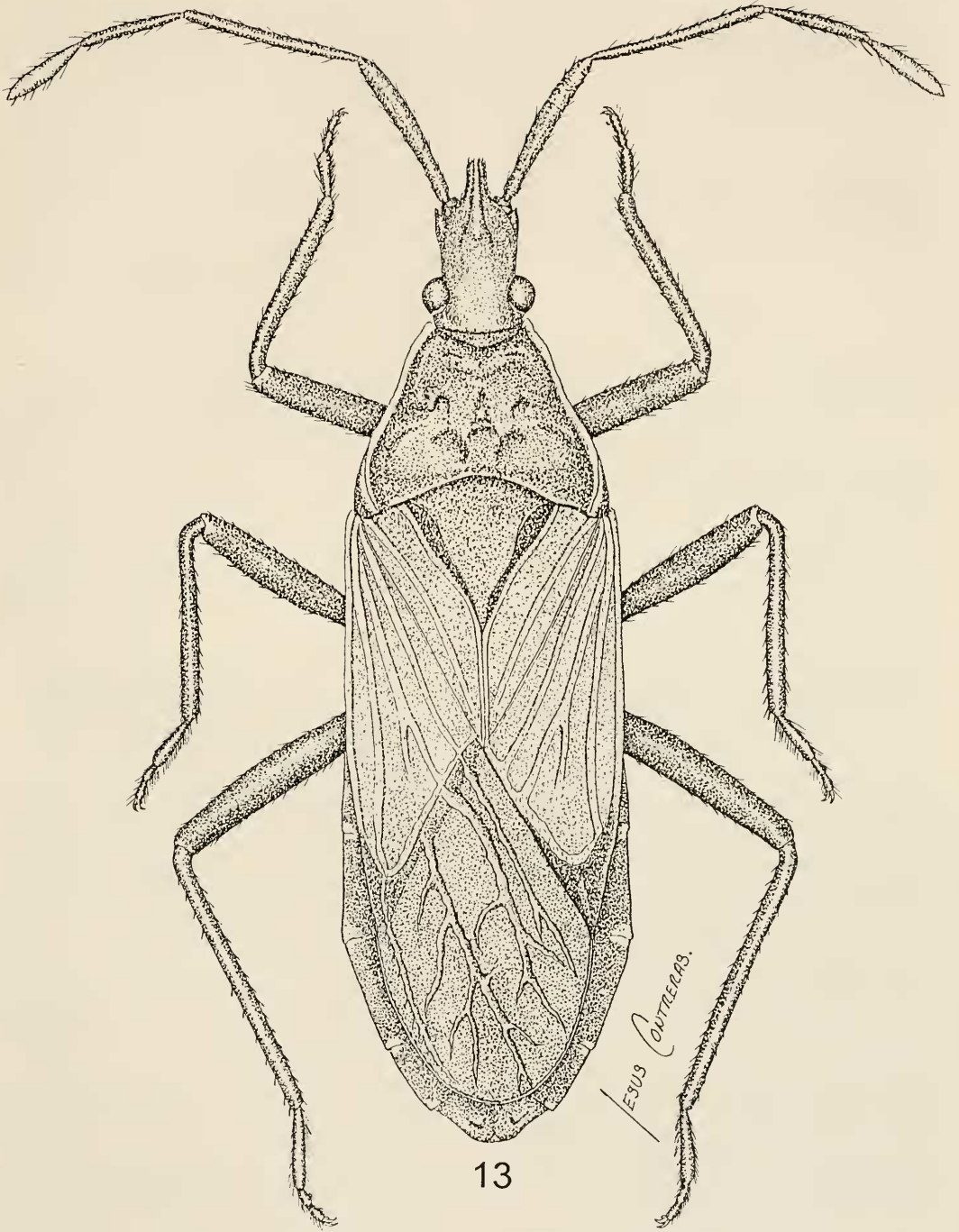


Fig. 13. Dorsal view of *Hyocephalus aprugius*, female, macropterous.

confirmed. Label data on specimens reported in this paper record *Maevius indecorus* in association with *Hypocalymna angustifolius* Endl. (Myrtaceae) and *Banksia* (Proteaceae), *M. luridus* in association with *Spinifex* and *Triodia* (Gramineae) and *Hyocephalus aprugnus* in association with *Pittosporum* (Pittosporaceae). No direct feeding can be assumed from any of these.

KEY TO THE KNOWN SPECIES OF HYOCEPHALIDAE

1. Antennal segment III longer than IV; fore femur unarmed or with some subapical tubercles; antennal segment I longer than 1.95 mm; parameres like Figs. 8–9
. *Hyocephalus aprugnus* Bergroth
- Antennal segment III shorter than IV; fore femur armed with double row of apical spines; antennal segment I shorter than 1.80 mm; parameres like Figs. 4–7 2
2. Body dark reddish brown; antennal segment I slender and longer than 1.68 mm; parameres like Figs. 6–7 *Maevius indecorus* Stål
- Body ochre yellow or pale brown on a ochre yellow background; antennal segment I robust and shorter than 1.60 mm; parameres like Figs. 4–5 *Maevius luridus*, n. sp.

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